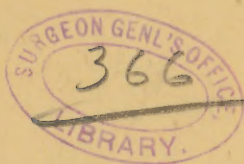


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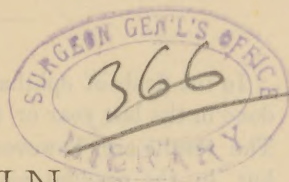
• Report on
Advances in ophthalmology,
Otology & Laryngology



White. (jos. A.)

REPORT

— ON —



ADVANCES IN

OPHTHALMOLOGY, OTOTOLOGY AND LARYNGOLOGY.

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ADVANCES IN OPHTHALMOLOGY, OTOTOLOGY AND LARYNGOLOGY.

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In the fields of ophthalmology, otology and laryngology much has been done in the last year or two towards the advancement of medical science. The results are, however, not seen in any specially brilliant discoveries, but in the gradual marching on towards the elucidation of obscure questions in physiology and pathology, and in improving methods of treatment and surgical appliances.

In *ophthalmology*, the investigations into the physiology of the eye (resulting e. g. in discovering, that the cornea derives its nourishment from the scleral vessels and discharges its waste products into the anterior chamber, contrary to preconceived ideas); into the pathology of sympathetic disease, and modes of its transmission; into the causation of glaucoma and methods for relief of its different forms; and into the connection between intra-cranial disease and optic neuritis, are of interest, not only to the ophthalmologist, but to all scientific medical men. The investigations into the alarming increase of refractive troubles, with their attendant evils, especially of myopia, or near-sightedness, during school-life, with a view of trying to regulate the schooling of our children by legislation or otherwise to the prevention of this danger to succeeding generations, are of interest to the public and profession alike. So, too, are the efforts of ophthalmologists to perfect methods of examination for color-blindness, and to secure legislation to eliminate that element of danger to the travelling public.

Unfortunately, the time at my disposal will not permit me to enter fully into these matters, interesting as they may be, as I wish to call your attention to a few points of every-day practical utility, though in so doing I hardly keep within the limits drawn for this paper by its title.

In *ophthalmic therapeutics*, I would ask your consideration of both some new and some old drugs.

First, in regard to the

MYDRIATICS, so-called, viz.: atropia, duboisine, hyoscyamine and homatropine.

Atropia.—For many years the first-named has been, I might say, the sheet-anchor of the oculist, as he used it in so many eye troubles. As a local anodyne it was applied to relieve pain and discomfort in the eyes; it is an important remedy in all diseases of the iris and cornea, in acute troubles of the inner coats, in paralyzing the accommodation to discover the state of the refraction, and, in weak solution, to dilate the pupil for diagnosis with the ophthalmoscope. Its disadvantages are, the danger of using it where there is a tendency to glaucoma, or in troubles threatening secondary glaucoma; and the annoyance resulting from its use in errors of refraction, on account of the duration of the effect, which sometimes lasts as long as a week or ten days; and the fact that some people manifest a decided idiosyncrasy against its use.

Duboisia.—With the discovery of duboisine a few years back, it was thought an efficient substitute for atropine, without its disadvantages; but the duration of its effect upon the accommodation is nearly as long as that of atropine; within the last year one or two cases of glaucoma following its use have been reported, and in some persons it produces a species of intoxication and mental aberration which is annoying, and sometimes alarming. I reported such a case two years ago, and have seen others since. Its only advantage seems to be that it may be employed where an idiosyncrasy against atropine exists, or where the latter produces no appreciable effect in diminishing the photophobia of some iritic and corneal troubles.

Later, sulphate of hyoscyamine and hydrobromate of homatropine (Ladenburg) were offered as substitutes for atropine. I have employed both of these, in determining refractive errors and for ophthalmoscopic diagnosis.

Hyoscyamine in a one-half per cent. solution (gr. ij- $\bar{3}$ j) paralyzes the accommodation very quickly, and its effect passes off much sooner than that of atropine or duboisine; and therefore, for diagnosis of astigmatism and other refractive troubles, it offers considerable advantages over these drugs, though I have seen it produce giddiness and a mild intoxication in a few instances.

Homatropine is more evanescent in its effects than any of the four mydriatics mentioned—probably too much so to place sure reliance upon it in diagnosing errors of refraction; but it has its advantages for ophthalmoscopic purposes, as the pupil so soon returns to its normal condition after its use; it is, moreover, non-poisonous. Up to this time, I have seen no report of glaucomatous symptoms following the application of either hyoscyamine or homatropine.

The opinions of ophthalmologists are as yet somewhat at variance as to the relative merits of the new mydriatics, which, as far as I can judge from published reports upon their action, is probably due to insufficiency of

data upon which to base conclusions. Further investigation alone will determine their merits. The same remark applies equally to the comparatively new

MYOTICS.—A few years back our only dependence as a myotic was the extract of calabar bean. Now we have the more active alkaloids, eserine and pilocarpine. Both contract the pupil—eserine, however, more powerfully than pilocarpine; and, moreover, both have become very valuable in other modes of application.

Eserine is used locally in acute glaucoma with good results in many cases (in chronic glaucoma it is useless), as a preventive of glaucomatous symptoms, in ulcers of the cornea, in serous iritis, and episcleritis; it comes also into play to antagonize the action of atropine and other mydriatics on the accommodation, and thus get rid of that annoyance following examinations for refractive errors.

Pilocarpine is used locally, internally and hypodermically, because of its stimulant and absorbent properties, and has been tried with varying success in exudative diseases of the retina and choroid, in vitreous opacities, in some forms of optic neuritis and commencing atrophy, and in retinal detachments. In this latter trouble, I have had some exceedingly favorable results, both in private and hospital practice. As an antidote to belladonna poisoning, it is superior to morphia. Locally, both eserine and pilocarpine are serviceable in paralysis of accommodation following scarlet fever, diphtheria, etc. All solutions of these drugs are best preserved by boiling, and adding carbolic acid in the proportion of one-half grain to the ounce.

Iodoform.—The use of iodoform in ophthalmic practice has greatly increased of late years. It is especially applicable to cases of granular conjunctivitis, trachomatous pannus, superficial ulcers and opacities of the cornea, and interstitial keratitis, in which troubles I have found it a very satisfactory remedy. It seems especially to control purulent and muco-purulent secretions from the conjunctiva, and is, therefore, useful whenever these are present. It is employed either as a fine powder dusted into the eye, or as a salve made up with vasaline in varying proportions from 7 to 30 per cent. of iodoform.

Boracic acid is a comparatively recent addition to both ophthalmic and aural practice. It is used in the slighter inflammations of the conjunctiva, either with or without some mild astringent. It is employed in the strength of from one to four grains to the ounce of water.

The mention of *astringents* reminds me that some reform in their application to eye diseases is still needed among a considerable number of our profession at large. There is no doubt that their use—especially that of *nitrate of silver*—is much abused. I have seen prescriptions for from 10 to

60 grains to the ounce of water, with directions to be dropped into the eyes—even in cases requiring only the mildest of astringents. I have seen eyes irretrievably damaged by its use. I was an eye-witness of an application of pure nitrate of silver to the everted lids—a rather heroic and dangerous proceeding for the patient's eyes. Oculists employ it most carefully, and rarely entrust it in the patient's hands, except in very weak solutions. Why should they, when they can prescribe alum, zinc and other astringents without running the same risks? Even these are usually given only in weak solutions, as their frequent application will do as well as the occasional use of stronger preparations, without causing as much discomfort. When necessary to use nitrate of silver in greater strength, it should be applied to the everted lids, either in solution with a camel's hair brush, or by means of the mitigated stick, and neutralized with salt and water before the lids are turned back.

Lead salts, which were formerly in such general use, should be entirely discarded, as they do not serve any better purpose than other astringents, and you run the risk of leaving indelible spots on the cornea if there are any abrasions of its surface.

Antiseptics.—The question of antiseptics in ophthalmic surgery has been much discussed in the last few years, more especially in its applicability to the extraction of cataract. After a careful analysis of what has been written upon the subject, and some experimentation in my own practice, I have concluded that the use of antiseptics is a very troublesome and useless addition to the after-treatment of cataract cases. If the instruments, the hands of the operator and assistants, and the face of the patient be scrupulously clean, and the conjunctival and lachrymal sacs free from muco-purulent inflammation, all is done that can be accomplished by a troublesome mode of antiseptics. In some special cases, the free use of a saturated spray or solution of boracic acid may be indicated, and will improve the chances of good results. In addition, clean linen, absorbent cotton or charpie, and clean bandages, are necessary. I think the best results are to be looked for after cataract extraction by giving careful attention to the physical condition of the patient in advance, and preparing him for operation by a judicious prior treatment; by estimating the condition of the lens and size of the nucleus, upon which depends the kind of section and operation to be made; and by being careful to leave a perfectly clean wound free from iris, fragments of capsule or cortical substance. I think the *peripheral section of the capsule* lessens these latter risks. This, followed by frequent changing of the dressings without disturbing the eye, unless the appearance of the lids or the secretions calls for an examination, is all that is needed to ensure a successful result. The peripheral section of the capsule, mentioned above, is a recent addition to our operative pro-

cedures, and its benefits have been best demonstrated by Knapp; but it probably necessitates a greater number of secondary operations, the so-called "tearing the capsule," and this is best performed by Knapp's cutting needle than by the old "tearing" process.

Optico-ciliary neurotomy.—This comparatively recent operation is still on probation. Some oculists, because of a few failures, condemn it; others laud it for the contrary reason. Objections, the truth or fallacy of which time and experience alone will demonstrate, are urged against it. From a cosmetic point of view, it is a great improvement on enucleation, if it really gives the same immunity against sympathetic disease. When the injured eye, even if the sight is entirely destroyed, is still a nice-looking organ, it is certainly better than an artificial eye, and should be preserved, if possible. In thus cutting the optic and ciliary nerves and making the eye-ball anæsthetic, *if it remains so*, this object is accomplished. If sensibility returns, I think the eye should be enucleated. I have had both results—some where the cornea lost entirely its sensibility and remained thus; others, where the sensibility returned, and I was obliged to remove the eye.

A short time ago, I was obliged to enucleate the eye for another cause. A young lady in Richmond, who had been injured in the right eye when a child, came to me last May suffering from sympathetic irritation in the other eye. I explained to her the trouble and the necessary treatment. She requested me to try and save the eye, if possible, even though the trial might result in failure. I performed optico-ciliary neurotomy by the method I suggested at our last annual meeting, and it was easily and quickly done. There was considerable hæmorrhage, with protrusion of the eye and after-pain. The following morning the eye looked well, the lids closed over it easily, there was no pain, and I looked for a favorable result, as the cornea was perfectly anæsthetic. Two hours after my visit, I was sent for, and on my arrival found that a secondary hæmorrhage had taken place, and the eye was much protruded. Five hours later, another hæmorrhage took place, with increased exophthalmos and violent pain. She passed a wretched night, and at 11 A. M. the next day a third hæmorrhage occurred, with protrusion of the whole eye-ball beyond the lids, which were much swollen and œdematous. The pain was agonizing, and was controlled by morphia injections. The next day, the third after the operation, the cornea was clouded, and a small, gangrenous spot appeared on the conjunctiva. As there was every probability of general slough of the cornea from its low state of vitality, I removed the eye. I found the whole orbit filled with an organized blood-clot, which, by its pressure upon the bleeding vessels, prevented further hæmorrhage.

This is the only case in my own experience in which such hæmorrhage resulted, either after neurotomy or enucleation. Had the latter been performed at first, I believe uncontrollable bleeding would have been the result. The eye remaining *in situ* acted as a compress, and prevented any dangerous loss of blood. I mention this case because it was, to me, an instructive one in regard to the operation.

I have hardly space to dilate upon other efforts to improve modes of treatment of eye-disease—such as the use of the actual cautery in ulcers of the cornea, in galvano-puncture in detachment of the retina, of nerve-stretching for orbital neuralgia, of extraction of steel and iron from the eye by the magnet, etc. Of one, however, of the published new methods in the last two years, viz. : the *use of electricity for the cure of cataract*, all I can say is, that it must have been the offspring of a too vivid imagination, or the effort of charlatanry to attract public attention, as it is an absurdity upon its face, and unworthy of discussion.

OTOLOGY AND LARYNGOLOGY.—If by *otology* we mean the science of ear diseases, and by *laryngology* the science of throat diseases *in toto*, we can hardly separate the two, as each has such intimate relation to, and bears upon one another. If, however, by *laryngology* we mean only diseases of the larynx, then *otology* and *laryngology* are separate and distinct studies. But in the event of this strict interpretation of the latter term, we would be obliged to look for a term to signify the throat and nose troubles which are so closely associated in our clinical experience with ear diseases, such a term, for example, as *pharyngology* or *rhinology*, or better still, *rhino-pharyngology* would have to be framed. The more general recognition of the intimacy between ear and throat in the treatment of ear disease, has been one advance of late years. Most of the textbooks on the ear, whilst recognizing the connection *anatomically*, did not seem to do so *clinically*, as the treatment of the throat troubles (which, in most cases of middle ear disease, are really the causes of the latter) was either entirely ignored or glanced at in the most superficial way.

When we look at the progress of *otology* in the past year or two, we are struck with the number of physiological and pathological investigations of the labyrinth and acoustic nerve trunk, with the result that, although much work of scientific value has been done—work which is a reliable foundation upon which to base clinical diagnosis—very little has been accomplished towards a practical elucidation of its diseases or their treatment. Investigations into the cause of aural vertigo and the functions of the semi-circular canals, have been made with varying success—some investigators arriving at different conclusions from others. The effect of syphilis upon the ear, and the pathological changes therefrom, have been carefully observed, with resulting additions to our knowledge thereof. But the obscurity that hangs around inner ear diseases has not yet been dissolved—our knowledge of them being as yet in its infancy.

But when we look at the middle and external ear, we get into clearer ground where the work has been followed by more practical results.

In regard to *purulent disease of the ear*, it has been discovered that, as in

other purulent troubles, a process of fermentation takes place, and cocco-bacteria have been found in the secretions. Consequently, the best treatment is an antiseptic one, with thorough cleanliness and exclusion of the air. In most cases, some mild astringent is combined with the antiseptic, such as boracic acid, in the form of a *hyper-saturated* solution in alcohol, or still better, in fine powder, with oxide of zinc or alum. The latter should not be used when caries is present, as it is apt to increase the discharges. In a few cases, caustic applications may be required. After making a plentiful application of powder with a powder-blower, a pellet of absorbent cotton should be applied, in order to exclude the air and keep the parts dry. As the discharge ceases, the pellet may be modified in size, and so applied as to take the place of an artificial drum-head; then, in addition to its therapeutic value, it improves the hearing, and the patient can learn to apply it for himself. According to the quantity of discharge or irritability of the parts, it is changed every day, every few days, or every two or three weeks. The cotton pellet, as an artificial drum-head, is superior to the old style rubber disks with wire attached, which were difficult to adjust and often caused irritation of the remnant of the drum-head and of the drum cavity. It is, of course, understood that any kind of artificial drum-head is of value only when there has been partial or complete destruction of the normal tympanic membrane. This should be borne in mind, as many of your patients have been victimized by the patentee or vendors of the "artificial drum," so-called, which is represented in the advertisements "to restore the hearing," irrespective of the cause of the deafness. When polypi are present, *alcohol*, with or without boracic acid dissolved in it, is probably the best application in the absence of the means of operation.

Mastoid disease, the most lamentable and dangerous result of purulent ear troubles, has received more attention. Close observation has been given to its treatment, and the indication for trephining the bone are more clearly understood. As you are already aware, unless prompt relief is given in this disorder, it is likely to result in death from brain complications.

When we come to *chronic non-suppurative middle ear disease*, we are necessarily led into the consideration of pharyngeal and nasal troubles, which, as above observed, nearly always complicate it, and, in the majority of cases, are the direct cause.

The treatment of the various thickenings, granulations, adenoid growths, hypertrophies, etc., in the naso-pharynx is, in most instances, the first step towards ridding our patient of chronic ear troubles. Hypertrophy of the erectile tissues over the turbinated bones has been demonstrated to be an important factor in this connection, and its influence upon the progress of naso-pharyngeal and aural catarrh has been much discussed. This I con-

sider one of the most important advances that has been made of late years in this department of surgery.

Anterior and posterior *rhinoscopy* is all important, both for diagnosis and treatment. Various remedies and different instruments have been suggested for the destruction of these hypertrophies, and not only the soft tissues must be removed, but sometimes even part of the bone itself. The most useful apparatus for their removal is, in my opinion, the simply-devised snare of Dr. Jarvis', which I have already shown you; but the galvano-cautery is coming more and more into use for their treatment, and much ingenuity has been shown in devising suitable attachments for working in the confined space of the nares, the best of which are probably those of Dr. Shurley, of Detroit. Another cause of naso-pharyngeal and resulting aural catarrh, and which only very recently has received proper attention, is a deflected septum which produces these unfortunate results by impeding the nasal current of air, and by acting as an irritant to the mucous membrane. Various methods have been suggested for operating on this deflection by perforating the septum and attempting to restore it to the median line with plugs; by removing the deflected portion, especially if there is any hypertrophy of its tissue; or by a regular plastic operation of cutting away a piece of the septum and co-aptating the parts with sutures so as to restore it to its normal position. Nearly always hypertrophy of the middle turbinated bone of the opposite nostril complicates the deflection of the septum, and this hypertrophy should be corrected by operation at the same time or before the septum is operated on.

These nasal obstructions have also been shown to be a frequent cause of asthma, and with their removal the asthma disappeared. It is, therefore, important in cases of so-called asthma to make a careful rhinoscopic inspection to see what symptoms of naso-pharyngeal disease may be present. The above, also, applies to many cases of so-called chronic laryngitis, of paroxysmal and spasmodic cough, and of partial loss of voice, where these effects are secondary to and dependent upon the naso-pharyngeal trouble, and which disappear when the latter is properly treated.

In regard to strictly *laryngeal* diseases, much attention has been given to their better classification and the recognition of their diagnostic signs; towards improving the means and apparatus for inspection, the methods of treatment and the application of remedies; and to elucidating the causes of the various laryngeal paralyses by experiments and investigations into the mechanism of the laryngeal muscles in the production of the voice in speaking and singing.

In this field, the importance of a familiarity with the use of the *laryngoscope* for diagnosis and treatment, is becoming more widely recognized by the profession, and in some of the medical schools it is a requirement for

graduation as much as the use of the stethoscope. The absurdity of attempting to make applications to the larynx without using the laryngoscope (*i. e.*, of applying a remedy you don't know *where*, for you don't know *what*), is self-evident, although it is done every day. In loss of voice, it is only by the mirror we can determine the cause, and it is called also of incalculable advantage in cases of foreign bodies in the windpipe, as intralaryngeal methods for removal should always be attempted before opening the trachea.

Tracheotomy.—As to the latter operation, every physician or surgeon, whatever his special line, should be ready to perform it at very short notice, as its urgency is often so great that no time should be lost in looking for one specially skilled in such work. This operation has also been utilized in that distressing disease “phthisical ulcerative laryngitis” to relieve the dyspnoea, and in some cases it has been claimed to have been the means of curing the local disease by the *rest* thus given to the ulcerated parts. I operated on such a case a year or so back, when tracheotomy was imperatively demanded, and the insertion of the canula was followed by rapid improvement of the local trouble, and the ulceration healed entirely, although the patient subsequently died of lung disease. Such cases open to discussion the question whether the ulceration was purely catarrhal or whether it was tuberculous in its character.

The presence of *erosions* or *superficial ulcerations* in catarrhal laryngitis is an undoubted fact; but as far as my limited experience goes, deep-seated ulceration, with necrosis of tissue, is the result of some dyscrasia. There are those, however, who believe in the existence of the true catarrhal ulcerative process in the larynx, independent of any constitutional cause, and I think the question an open one.

In thus closing this short notice of what has been done in my special field of work, I regret that time did not permit me to dilate more fully upon some points merely mentioned; but I trust my report will awaken in our Society the same interest in these departments of medicine and surgery as it has already manifested in others.

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